CLAIM AMENDMENTS

Please amend the claims as described below. In accordance with 37 CFR §1.121, a complete listing of all claims in the application is provided below. The status of each claim is indicated in the parenthetical expression adjacent to the corresponding claim number.

1. (**Currently Amended**) An analyte sensing device for sensing a concentration of analyte in a fluid, the analyte sensing device comprising:

a housing; and

an analyte sensing component disposed within the housing and including:

a first radiation converting component ~~that is capable of converting~~ to convert radiation of a first wavelength to radiation having at least one different wavelength by receiving radiation of the first wavelength and, in response thereto, emitting radiation having at least one wavelength that is different from the first wavelength, wherein ~~the~~ an efficiency of conversion by the first radiation converting component to radiation having at least one wavelength that is different from the first wavelength is dependent on the concentration of the analyte ~~with~~in the housing;

a second radiation converting component to convert radiation of a second wavelength to radiation having at least one wavelength that is different from the second wavelength by receiving radiation of the second wavelength and, in response thereto, emitting radiation having at least one wavelength that is different from the second wavelength, wherein an efficiency of conversion of the radiation of the second wavelength by the second radiation converting component is independent or substantially independent of the concentration of the analyte in the housing;

an analyte-specific binding ligand; and

a macroporous matrix wherein the analyte-specific binding ligand is attached to the surface of, or embedded in the macroporous matrix.

2. (**Currently Amended**) The analyte sensing device of claim 1 wherein the housing includes a ~~permeable or~~ semi-permeable membrane.

3. (**Previously Presented**) The analyte sensing device of claim 2 wherein the membrane is comprised of a cellulose acetate material.

4. (**Currently Amended**) The analyte sensing device of claim 1 wherein the housing includes at least a permeable ~~or semi-permeable~~ portion.

5. (**Currently Amended**) The analyte sensing device of claim 4 wherein the permeable ~~or semi-permeable~~ portion of the housing is comprised of a cellulose acetate material.

6. (**Previously Presented**) The analyte sensing device of claim 4 wherein the housing includes a hollow dialysis fiber.

7. (**Previously Presented**) The analyte sensing device of claim 1 wherein the analyte-specific binding ligand is a lectin.

8. (**Previously Presented**) The analyte sensing device of claim 1 wherein the analyte sensing component further includes a radiation absorbing component ~~in close~~ having a proximity to the analyte-specific binding ligand that is sufficient to alter the efficiency of the conversion of the radiation of the first wavelength by the first radiation converting component.

9. (**Previously Presented**) The analyte sensing device of claim 1 wherein the analyte is glucose and wherein the macroporous matrix includes agarose beads and the analyte-specific binding ligand includes a lectin.

10. (**Previously Presented**) The analyte sensing device of claim 9 wherein the lectin is Concanavalin A.

11. (**Previously Presented**) The analyte sensing device of claim 1 wherein the analyte-specific binding ligand is covalently labeled with or ~~is in close~~ includes a proximity to a radiation absorbing component that is sufficient to alter the efficiency of the conversion of the radiation of a first wavelength by the first radiation converting component.

12. (**Currently Amended**) The analyte sensing device of claim 1 wherein the analyte sensing component further comprises an analyte-analogue capable of being bound by the analyte-specific ~~analyte~~ binding ligand.

13. (**Currently Amended**) The analyte sensing device of claim 1 wherein the analyte sensing component further includes a ~~second~~ third radiation converting component ~~that is capable of converting~~ to convert radiation of a ~~second~~ third wavelength to at least one ~~different~~ wavelength that is different from the third wavelength, wherein ~~the~~ an efficiency of conversion of the radiation of the third wavelength by the third radiation converting component is dependent on the concentration of the analyte ~~with~~in the housing.

14. (**Currently Amended**) The analyte sensing device of claim 1 wherein the first and second wavelengths are the same wavelength ~~analyte sensing component further includes a second radiation converting component that is capable of converting radiation of a second wavelength to radiation having at least one different wavelength wherein the efficiency of conversion is independent or substantially independent of the concentration of the analyte within the housing~~.

15. (**Previously Presented**) The analyte sensing device of claim 1 wherein the device is capable of being implanted within subcutaneous tissue of an animal body.

16. (**Previously Presented**) The analyte sensing device of claim 1 wherein the analyte sensing component further comprises:

an analyte-analogue;

~~a radiation absorbing component in close proximity to the analyte specific binding ligand~~; and

wherein the first radiation converting component is attached to the analyte-analogue and the analyte-specific binding ligand is capable of binding to the analyte and/or analyte-analogue; and

a radiation absorbing component having a proximity to the analyte-specific binding ligand that is sufficient to alter the efficiency of the conversion of the radiation of the first wavelength by the first radiation converting component when the analyte analogue is bound by the analyte-specific binding ligand.

17. (**Previously Presented**) The analyte sensing device of claim 16 wherein the housing comprises a permeable or semi-permeable membrane which allows analyte to move into or out of the housing but does not allow analyte sensing component to move out of the housing.

18. (**Currently Amended**) The analyte sensing device of claim 16 wherein the efficiency of conversion of radiation at the first wavelength to radiation having the at least one different wavelength by the first radiation converting component decreases ~~is decreased~~ when the analyte-analogue is bound by the analyte-specific binding ligand.

19. (**Previously Presented**) The analyte sensing device of claim 16 wherein the analyte-analogue is a dextran.

20. (**Previously Presented**) The analyte sensing device of claim 16 wherein the analyte-analogue is a glycosylated or mannosylated protein.

21. (**Previously Presented**) The analyte sensing device of claim 18 wherein the analyte-analogue includes a polymeric chain of glucose residues .

22. (**Previously Presented**) The analyte sensing device of claim 16 wherein the first radiation converting component is Alexa647.

23. (**Previously Presented**) The analyte sensing device of claim 16 wherein the analyte-specific binding ligand is a lectin.

24. (**Previously Presented**) The analyte sensing device of claim 23 wherein the lectin is Concanavalin A.

25. (**Previously Presented**) The analyte sensing device of claim 23 wherein the lectin is *Lens culinaris* lectin.

26. (**Previously Presented**) The analyte sensing device of claim 16 wherein the radiation absorbing component is QSY21.

27. (**Previously Presented**) The analyte sensing device of claim 16 wherein the radiation absorbing component is covalently bound to the analyte-specific binding ligand.

28. (**Previously Presented**) The analyte sensing device of claim 16 wherein the radiation absorbing component is attached to the surface of or embedded throughout the macroporous matrix.

29. (**Currently Amended**) The analyte sensing device of claim 16 further including a ~~second~~ third radiation converting component ~~capable of converting~~ to convert radiation of a ~~second~~ third wavelength into radiation having at least ~~a~~ one wavelength that is different from the ~~second~~ third wavelength by receiving radiation of the third wavelength and, in response thereto, emitting radiation having the at least one wavelength that is different than the third wavelength.

30. (**Currently Amended**) The analyte sensing device of claim 1 ~~29~~ wherein the second radiation converting component is LD800.

31. (**Previously Presented**) The analyte sensing device of claim 16 wherein the analyte is glucose.

Claims 32-70 (**Canceled**).

71. (**Currently Amended**) An analyte sensing system for sensing a concentration of analyte in a fluid, the analyte sensing system comprising:

an analyte sensing device including:

a housing; and

an analyte sensing component disposed within the housing and including:

a first radiation converting component ~~that is capable of converting~~ to convert radiation of a first wavelength to radiation having at least one different wavelength by receiving radiation of the first wavelength and, in response thereto, emitting radiation having at least one wavelength that is different from the first wavelength, wherein ~~the~~ an efficiency of conversion by the first radiation converting component to radiation having at least one wavelength that is different from the first wavelength is dependent on the concentration of the analyte ~~with~~in the housing;

a second radiation converting component to convert radiation of a second wavelength to radiation having at least one wavelength that is different from the second wavelength by receiving radiation of the second wavelength and, in response thereto, emitting radiation having at least one wavelength that is different from the second wavelength, wherein an efficiency of conversion of the radiation of the second wavelength by the second radiation converting component is independent or substantially independent of the concentration of the analyte in the housing;

an analyte-specific binding ligand; and

a macroporous matrix wherein the analyte-specific binding ligand is attached to the surface of, or embedded in the macroporous matrix;

a radiation providing unit to provide radiation at the first wavelength; and

a radiation detecting unit to detect ~~the~~ radiation ~~of~~ having one or more wavelengths ~~at least one different wavelength~~ and to output data which is representative of the intensity

of the radiation ~~of the at least one different wavelength~~ emitted by the first and second radiation converting components.

72. (**Currently Amended**) The analyte sensing system of claim 71 further including an analysis unit~~, coupled to the radiation detecting unit,~~ to determine the concentration of analyte ~~with~~in the housing using the data which is representative of the intensity of the radiation ~~of the at least one different wavelength~~ emitted by the first and second radiation converting components.

73. (**Previously Presented**) The analyte sensing system of claim 71 wherein the radiation detecting unit includes a plurality of radiation detecting devices wherein each device is capable of detecting a wavelength-specific portion of radiation.

74. (**Currently Amended**) The analyte sensing system of claim 71 wherein:

the first radiation converting component ~~is capable of converting~~ converts radiation of the first wavelength to radiation having a plurality of wavelengths by receiving radiation of the first wavelength and, in response thereto, emitting radiation having the plurality of wavelengths, wherein ~~the~~ an efficiency of conversion to the radiation having the plurality of wavelengths is dependent on the concentration of the analyte ~~with~~in the housing; and

the radiation detecting unit includes a plurality of radiation detecting devices ~~wherein each device is capable of~~ to detect~~ing~~ at least one of the plurality of wavelengths.

75. (**Currently Amended**) The analyte sensing system of claim 71 wherein:

the first radiation converting component ~~is capable of converting~~ converts radiation of the first wavelength to radiation having a plurality of wavelengths within a first wavelength range by receiving radiation of the first wavelength and, in response thereto, emitting radiation having the plurality of wavelengths within the first wavelength range, wherein ~~the~~ an efficiency of conversion to the radiation having the plurality of wavelengths within the first wavelength range is dependent on the concentration of the analyte ~~inside~~ ~~with~~in the housing; and

the radiation detecting unit includes a plurality of radiation detecting devices ~~wherein each device is capable of~~ to detect~~ing~~ radiation within the first wavelength range.

76. (**Previously Presented**) The analyte sensing system of claim 75 wherein the radiation detecting unit includes one or more photodiode detectors or a CCD array.

77. (**Previously Presented**) The analyte sensing system of claim 71 wherein the radiation providing unit is disposed within or adjacent to the housing.

78. (**Currently Amended**) The analyte sensing system of claim 71 wherein:

the analyte sensing component further includes a ~~second~~ third radiation converting component ~~that is capable of converting~~ to convert radiation of a ~~second~~ third wavelength to at least one different wavelength by receiving the radiation of a third wavelength and, in response thereto, emitting radiation having at least one wavelength that is different from the third wavelength, wherein ~~the~~ an efficiency of conversion is dependent on the concentration of the analyte in the housing;

the radiation detecting unit outputs data which is representative of ~~the~~ an intensity of the radiation ~~of the at least one different wavelength~~ emitted by ~~of~~ the first, ~~and~~ second and third radiation converting components; and

wherein the analyte sensing system further includes an analysis unit, coupled to the radiation detecting unit, to determine the concentration of analyte in the housing using the data output by the radiation detecting unit.

79. (**Currently Amended**) The analyte sensing system of claim 71 wherein:

~~the analyte sensing component further includes a second radiation converting component that is capable of converting radiation of a second wavelength to at least one different wavelength wherein the efficiency of conversion is independent or substantially independent of the concentration of the analyte in the housing;~~

~~the radiation detecting unit outputs data which is representative of the intensity of the radiation of the at least one different wavelength of the first and second radiation converting components; and~~

~~wherein~~ the analyte sensing system further includes an analysis unit, coupled to the radiation detecting unit, to determine the concentration of analyte inside the housing using the data output by the radiation detecting unit.

80. (**Currently Amended**) The analyte sensing system of claim 79 wherein the determination of the concentration of the analyte by the analysis unit includes (1) conditioning the data output by the radiation detecting unit and (2) computing the ratio of the intensity of the radiation in a first wavelength range corresponding to radiation emitted

by the first radiation converting component and a second wavelength range corresponding to radiation emitted by the second radiation converting component ~~uses a difference in the intensities of radiation detected by the radiation detecting unit due to the at least one different wavelength of the first radiation converting component relative to the at least one different wavelength of the second radiation converting component~~.

Claims 81-101 (**Canceled**).

102. (**Currently Amended**) An analyte sensing device for sensing a concentration of analyte in a fluid, the analyte sensing device comprising:

a housing;

an analyte-analogue disposed within the housing;

a macroporous matrix disposed within the housing;

an analyte-specific binding ligand, (i) attached to the surface of the macroporous matrix or (ii) disposed or embedded in the macroporous matrix, and capable of binding to analyte and/or analyte-analogue;

a first radiation converting component, attached to the analyte-analogue, ~~and capable of converting~~ to convert radiation of a first wavelength to radiation having at least one different wavelength by receiving radiation of the first wavelength and, in response thereto, emitting radiation having at least one wavelength that is different from the first wavelength, wherein ~~the~~ an efficiency of conversion by first radiation converting component to radiation having at least one wavelength that is different from the first wavelength is dependent on the concentration of analyte ~~with~~in the housing;

a second radiation converting component to convert radiation of a second wavelength to radiation having at least one wavelength that is different from the second wavelength by receiving radiation of the second wavelength and, in response thereto, emitting radiation having at least one wavelength that is different from the second wavelength, wherein an efficiency of conversion of the radiation of the second wavelength by the second radiation converting component is independent or substantially independent of the concentration of the analyte in the housing; and

a radiation absorbing component, disposed within the housing, ~~and in close~~ having a proximity to the analyte-specific binding ligand that is sufficient to alter the efficiency of the conversion of the radiation of the first wavelength by the first radiation converting component.

103. (**Previously Presented**) The analyte sensing device of claim 102 wherein the housing comprises a permeable or semi-permeable membrane which allows analyte to move into or out of the housing but does not allow analyte sensing component to move out of the housing.

104. (**Currently Amended**) The analyte sensing device of claim 102 wherein the efficiency of conversion of radiation at the first wavelength to radiation having the at least one different wavelength by the first radiation converting component ~~is decreased~~ decreases when the analyte-analogue is bound by the analyte-specific binding ligand.

105. (**Previously Presented**) The analyte sensing device of claim 104 wherein the analyte-analogue includes a polymeric chain of glucose residues.

106. (**Previously Presented**) The analyte sensing device of claim 102 wherein the analyte-analogue is a dextran.

107. (**Previously Presented**) The analyte sensing device of claim 102 wherein the analyte-analogue is a glycosylated or mannosylated protein.

108. (**Previously Presented**) The analyte sensing device of claim 102 wherein the first radiation converting component is Alexa647.

109. (**Previously Presented**) The analyte sensing device of claim 102 wherein the analyte-specific binding ligand is a lectin.

110. (**Previously Presented**) The analyte sensing device of claim 109 wherein the lectin is Concanavalin A.

111. (**Previously Presented**) The analyte sensing device of claim 109 wherein the lectin is *Lens culinaris* lectin.

112. (**Previously Presented**) The analyte sensing device of claim 102 wherein the radiation absorbing component is QSY21.

113. (**Previously Presented**) The analyte sensing device of claim 102 wherein the radiation absorbing component is covalently bound to the analyte-specific binding ligand.

114. (**Previously Presented**) The analyte sensing device of claim 102 wherein the radiation absorbing component is attached to the surface of or embedded throughout the macroporous matrix.

115. (**Currently Amended**) The analyte sensing device of claim 102 further including a ~~second~~ third radiation converting component ~~capable of converting~~ to convert radiation of a ~~second~~ third wavelength into radiation having at least ~~a~~ one wavelength that is different from the ~~second~~ third wavelength by receiving radiation of the third wavelength and, in response thereto, emitting radiation having at least one wavelength that is different from the third wavelength.

116. (**Currently Amended**) The analyte sensing device of claim 102 ~~115~~ wherein the second radiation converting component is LD800.

117. (**Previously Presented**) The analyte sensing device of claim 102 wherein the analyte is glucose.

118. (**New**) The analyte sensing device of claim 102 wherein the second radiation converting component is a TransFluoSpheres.

119. (**New**) The analyte sensing device of claim 102 wherein the first and second wavelengths are the same wavelength.

120. (**New**) The analyte sensing device of claim 1 wherein the second radiation converting component is a TransFluoSpheres.

121. (**New**) The analyte sensing system of claim 71 wherein the second radiation converting component is LD800.

122. (**New**) The analyte sensing system of claim 71 wherein the second radiation converting component is a TransFluoSpheres.

123. (**New**) The analyte sensing system of claim 71 wherein the first and second wavelengths are the same wavelength.